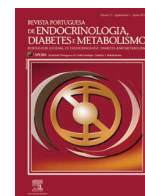




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### POSTERS

#### P01. GENDER FEATURES OF VERTEBRAL PAIN SYNDROME DEPENDING ON BONE MINERAL DENSITY

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**Objectives:** The aim is to study the frequency of vertebral pain syndrome in men and women of older age groups depending on the bone mineral density (BMD).

**Methods:** We have examined 1,934 people aged 50-89 years, among them 1697 women and 237 men. The frequency of back pain syndrome was studied depending on BMD (osteoporosis, osteopenia, and norm). BMD at all sites was measured by DXA using a Prodigy densitometer (GE).

**Results:** The frequency of pain syndrome among older age groups is significantly higher in women compared with men (88.3% (1,499/1,697) vs 84.8% (201/237), accordingly,  $p = 0.01$ ). In women of 50-89 years, with osteoporosis and no fractures in their anamnesis, pain syndrome in the thoracic and lumbar spine is significantly higher in comparison with women who have osteopenia ( $p = 0.01$ ) and normal BMD ( $p = 0.02$ ) and compared to men with a similar BMD state (osteoporosis; 91.8% (337/367) vs 76.2% (16/21), accordingly,  $p = 0.01$ ). The frequency of pain syndrome in the thoracic and the lumbar spine in women is associated with BMD. The presence of osteoporosis increases the risk of pain syndrome in the thoracic spine (RR = 1.27, 95%CI: 1.12-1.44,  $p = 0.0001$ ). In older women, the presence of low-energy fractures significantly impacts the increasing frequency of pain in the thoracic region regardless of the BMD state.

**Conclusions:** The frequency of pain among older age groups is significantly higher in women compared with men. In women of older age groups, the presence of low-energy fractures significantly increases the frequency of pain in the thoracic region, regardless of the state of BMD. In women 50-89 years old, with osteoporosis and no low-energy fractures, the frequency of pain in the thoracic and lumbar regions is significantly higher compared to women with osteopenia and normal BMD, as well as compared to men with a similar BMD state (osteoporosis).

#### P02. BETA-2 ADRENERGIC RECEPTOR (ADRB2) GENE POLYMORPHISMS AS RISK FACTORS FOR REDUCED BONE MINERAL DENSITY

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**Introduction:** Beta-2-adrenergic receptor (ADRB2) has been identified in osteoblasts and osteoclasts. It is known that it is involved in the inhibition of bone formation by osteoblasts and promotion of osteoclastogenesis by increasing RANKL. The gene encoding this receptor is polymorphic and such mutations, namely Arg16Gly and Gln27Glu polymorphisms, can cause a down-regulation of intracellular trafficking of the receptor that leads to an increase in desensitization of the related reaction.

**Objectives:** To study the association between Beta-2 Adrenergic Receptor (ADRB2) gene polymorphisms Arg16Gly and Gln27Glu and osteoporosis.

**Methods:** Bone mineral density (BMD, g/cm<sup>2</sup>) was measured by DEXA in 93 females: 61 with normal BMD (age = 44.9 ± 11.9 years; BMI = 30.6 ± 5.9 kg/m<sup>2</sup>) and 31 with reduced bone mass/osteopenia and osteoporosis (age = 62.3 ± 13.3 years; BMI = 25.2 ± 3.9 kg/m<sup>2</sup>). Bone remodeling parameters were analyzed by standard methods: alkaline phosphatase, alkaline phosphatase bone fraction and osteocalcin. Beta-2 Adrenergic Receptor (ADRB2) gene polymorphisms Arg16Gly and Gln27Glu were studied by PCR-RFLP and dominant and recessive models were applied to establish genotype groups. Statistical analysis by SPSS 21.0 and statistical significance for  $p < 0.05$ .

**Results:** Age and BMI are different between normal and reduced BMD ( $p < 0.001$ ) but didn't differ between Arg16Gly or Gln27Glu genotypes. We found significant differences between ADRB2\_Arg16Gly polymorphism and BMD with a higher frequency of AA genotype in females with reduced BMD ( $p = 0.019$ ). These ones showed higher risk for reduced bone mass (OR = 3.470, 95%CI 1.225-9.833). Regarding ADRB2\_Gln27Glu polymorphism, we found a tendency for a higher frequency of CC genotype in females with reduced BMD ( $p = 0.058$ ). We didn't find significant differences between ADRB2\_Arg16Gly and ADRB2\_Gln27Glu polymorphisms and bone remodeling parameters, neither in the general population nor in those with normal or reduced BMD.

**Conclusions:** Arg16Gly and Gln27Glu polymorphisms in the gene encoding Beta-2 Adrenergic Receptor (ADRB2) may be risk factors for reduced bone mineral density in females.

### P03 -IDENTIFICATION OF NEUROPATHIC PAIN COMPONENT IN PATIENTS OF VARIOUS AGE WITH KNEE OSTEOARTHRITIS

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**Introduction:** Osteoarthritis-induced pain is a result of nociceptor stimulation, associated with local tissue damage and inflammation. Recent data suggest the presence of neuropathic pain symptoms in patients with osteoarthritis.

**Objectives:** The aim of this study was to estimate the structure of pain syndrome, reveal the presence of neuropathic pain (NP) component, symptoms and signs of NP in patients suffering from knee osteoarthritis.

**Methods:** We've examined 44 patients with knee osteoarthritis of the II-III stages by the Kallgren-Lawrence scale aged 47-85 years (average age  $66.1 \pm 1.5$  years). To assess the NP component, we used screening scales painDETECT, LANSS, DN4 questionnaires. To assess intensity of pain, visual analogue scale (VAS) was used. Besides WOMAC and EuroQol-5D questionnaire were applied. For statistical analysis of results, ANOVA, correlation and regression analysis was applied.

**Results:** 4.6% of patients with knee osteoarthritis examined by painDETECT were likely to have the NP component. LANSS scale: 25% were probably to have NP. DN4 scale: 31.2% probably had NP. Moderate to significant correlations were found between intensity of pain by VAS data and Neuropathic Pain Scales (painDETECT, LANSS, DN4) data ( $p < 0.05$ ). It was established that higher results of screening by painDETECT and DN4 positively correlate with a disturbance of physical function tested by WOMAC ( $p < 0.05$ ). PainDETECT data have moderate to significant correlations with EuroQol-5D questionnaire ( $p < 0.01$ ). Verbal descriptors as pins and needles, tingling, numbness and allodynia, pain from light touch which are revealed by 3 screening scales can significantly contribute to the likely neuropathic component in patients with knee osteoarthritis ( $p < 0.05$ ). Burning pain ( $p < 0.01$ ), pins and needles ( $p < 0.05$ ) can be associated with a more severe pain in patients with knee osteoarthritis.

**Conclusions:** Thus, in patients with osteoarthritis the pain syndrome may reveal NP features. Identification of these would promote a targeted treatment strategy.

### P04. EVALUATION OF BONE MINERAL DENSITY IN ADOLESCENTES WITH ANOREXIA NERVOSA

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**Introduction:** One of Anorexia Nervosa's (AN) most frequent complications is the loss of bone mass, which represents a serious problem in adolescence, as it may reduce the peak bone mass attained, leading to osteopenia and osteoporosis.

**Objectives:** The objective of our study was to evaluate the prevalence of the reduction of Bone Mineral Density (BMD) in adolescents with AN, and its relation to anthropometric data (weight, height and BMI).

**Methods:** 66 adolescents with AN, referred to the Santo António Hospital Nuclear Medicine service between 2008 and 2015, were

retrospectively studied. A Hologic QDR-4500 densitometer was used to calculate BMD, Z-score and BMC. The correlation between variables was determined by linear regression analysis. The significance level was established at  $p \leq 0.05$ .

**Results:** The studied population presented average values of  $0.86 \pm 0.11$  g/cm<sup>2</sup> of BMD,  $-0.67 \pm 1.21$  of Z-score and  $26.82 \pm 15.05$  g of BMC. 14% of patients presented with bone mineralisation values below the variation expected for the age (Z-score  $< -2$ ), it being that 40% of patients had a reduction of bone mass, defined, in this study, by a Z-score  $< -1$ . Further, there was a significant correlation between the anthropometric data and bone mineral density, more notorious in relation to weight and to BMC.

**Conclusions:** The results showed that, in an adolescent population with AN, more than half of the individuals show no significant changes in BMD. These results are similar to those of previous studies and demonstrate that, in the disease's initial stages, BMD is relatively maintained. This study stresses the importance of early diagnosis of AN in adolescents, so as to find strategies to prevent loss of bone mass in this age group and impede the reduction in peak bone mass expected, which could leave to future severe complications.

### P05. OSTEOPOROSIS IN NEUROLOGICAL DISORDERS

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**Introduction:** Neurological disorders, notably stroke, Parkinson's disease and spinal cord injury are associated with increased falls risk and fracture risk.

**Objectives:** The aim of the research is to define the bone mineral density in patients, with neurological disorders.

**Methods:** We examined 48 men and women with Parkinson's disease (duration of Parkinson's disease was at list 5 years and all were on L-dopa treatment), 52 stroke patients (men and women), 21 patients with chronic spinal cord injury (AIS score A, B) and healthy people of appropriate age.

**Results:** BMD of patients with Parkinson's disease was significantly lower compared with BMD of healthy persons, both men and women (BMD lumbar spine women =  $1.00 \pm 0.15$  vs  $1.11 \pm 0.15$  g/cm<sup>2</sup>,  $p < 0.05$ , the difference of BMD was about 15%, and BMD lumbar spine men =  $1.16 \pm 0.24$  vs  $1.29 \pm 0.24$  g/cm<sup>2</sup>,  $p < 0.05$ ). BMD stroke patients was also significantly lower compared with BMD of healthy persons: (BMD lumbar spine =  $1.13 \pm 0.20$  vs  $1.28 \pm 0.46$  g/cm<sup>2</sup>,  $p < 0.05$ , BMD total hip =  $0.97 \pm 0.18$  vs  $1.09 \pm 0.25$  g/cm<sup>2</sup>,  $p < 0.05$ ). In women the difference was significant at the level of the total body and distal forearm. In men, the difference was significant only in the group of the patients with moderate and severe paresis. BMD SCI patients was dramatically low (BMD lumbar spine =  $1.14 \pm 0.19$  vs  $1.24 \pm 0.26$  g/cm<sup>2</sup>,  $p < 0.05$ , BMD total hip =  $0.82 \pm 0.28$  vs  $1.07 \pm 0.27$  g/cm<sup>2</sup>,  $p < 0.05$ ), the difference of BMD was about 23%.

**Conclusions:** BMD in men and women with neurological disorders (Parkinson's disease, stroke and spinal cord injury) was significantly lower than in healthy persons of the same age.

### P06. EVIDENCE OF ISOFLAVONES USE IN OSTEOPOROSIS PREVENTION

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*Medicina Geral e Familiar.*

Osteoporosis is characterized by decreased bone mass and microarchitectural deterioration of bone, increasing fracture risk.